Course title: MICROPROCESSORS IN INDUSTRY

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course status</th>
<th>Semester</th>
<th>Number of ECTS credits</th>
<th>Lecture hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA4202</td>
<td>Mandatory</td>
<td>II</td>
<td>5</td>
<td>3+0+1</td>
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</tbody>
</table>

Study program:
Master studies, ELECTRICAL ENGINEERING, study program: Power systems and Control, department: Industrial electronics and Automation (studies last for 10 semesters, 300 ECTS credits).
Postgraduate studies, ELECTRICAL ENGINEERING, study program: Power systems and Control, department: Industrial electronics and Automation (studies last for 8 semesters, 240 ECTS credits)

Prerequisites:
No prerequisites required.

Course aims:
Students will be introduced with possibilities of application and use of available software, as well as with basic knowledge about projects of hardware and software components of microprocessors/microcontrollers systems which are applied in industry.

Teacher(s) first and last names:
PhD Milutin OSTOJIĆ, dipl. ing. - professor, MSc Boris MARKOVIĆ, dipl.ing. - assistant

Studying method:
Lectures, laboratory exercises in computer room, individual work, practical assignments consultations

Course synopsis

- Preliminary week: Preparation and semester enrolment.
- I week: Introduction. Examples of application of microcontrollers/microcomputers in industry.
- II week: Architecture and organization of microcontrollers/microcomputers.
- III week: Basic programs for programming of microcontrollers/microcomputers (I homework).
- IV week: Advanced programs for programming of microcontrollers/microcomputers.
- V week: Peripherals and interfaces of microcontrollers/microcomputers (A/D i D/A conversion) (II homework).
- VI week: I colloquium.
- VII week: Digital data processing, (time frequency transformations).
- VIII week: Algorithms for monitoring and control in real time. (III homework)
- IX week: Interface cards for microcomputers.
- X week: Sensors and measurements of characteristic physical inputs in industry using computers...
- XI week: Software for control of technology processes. (IV homework)
- XII week: II colloquium.
- XIII week: Connections and communications of microcontrollers/
- XIV week: Internet and mobile phone as transmission media for remote control. (V homework).
- XV week: Development directions of microcontroller control.
- XVI week: Determination of seminar works for final exam.
- Final week: Final exam.
- XVIII-XXI week: Administrative procedures.

Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

<table>
<thead>
<tr>
<th>Working hours: 5 credits x 40/30 = 6 hours and 40 minutes.</th>
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<tbody>
<tr>
<td>Working hours structure:</td>
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<tr>
<td>3 hours for teaching</td>
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<tr>
<td>1 hour for exercises</td>
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<tr>
<td>2 hours and 40 minutes for individual work, including consultations.</td>
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Lessons and laboratory exercises attendance is mandatory for students, as well as doing homework, colloquiums and seminar work.

Literature: Mikroprocesori u industriji (skripta), M. Ostojić, B. Marković
CD with material and laboratory exercises

The forms of knowledge testing and grading:
- Homework 5x1 points,
- Colloquium 2x22.5 points (total 45 points)
- Final exam 50 points

Student gets the passing grade by collecting 51 points at least.

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<thead>
<tr>
<th>Mark</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
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<tbody>
<tr>
<td>Number of points</td>
<td>90 - 100</td>
<td>80 - 89</td>
<td>70 - 79</td>
<td>60 - 69</td>
<td>51 - 59</td>
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Special remarks for the course: If needed, the course can also be taught in English.

Note: Additional information on http://www.bm.users.cg.yu/